



# **MAASAI MARA UNIVERSITY**

**REGULAR UNIVERSITY EXAMINATIONS  
FOURTH YEAR SECOND SEMESTER  
THIRD YEAR FIRST SEMESTER**

**SCHOOL OF BUSINESS & ECONOMICS  
BACHELOR OF ARTS IN ECONOMICS  
BACHELOR OF SCIENCE IN AGRICULTURAL  
ECONOMICS AND RESOURCE MANAGEMENT**

**COURSE CODE: ECO 413/ARE 305  
COURSE TITLE: ECONOMETRICS II**

**DATE: 16<sup>TH</sup> APRIL, 2018**

**TIME: 0830 - 1030AM**

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## **INSTRUCTIONS TO CANDIDATES**

**Answer Question ONE and any other THREE questions**

### QUESTION ONE (25 Marks)

- a. Justify the use of OLS in regression (use mathematical proof) **(5 Marks)**  
b. Distinguish the following: **(6 Marks)**

- i. Structural equation vs. reduced form equation  
ii. Indirect Least Square Method Vs 2SLS  
iii. Classical linear Vs Generalised Least Square regression

- c. Interpret the following results (**variances in bracket**)

$$Y = 6 + 0.8X_1 - 0.9X_2 + 10X_3$$

$$(16) \quad (0.6) \quad (0.09) \quad (64)$$

$$R^2 = 0.86$$

**(5 Marks)**

- d.  $Y = 4 + 8X_1 + 0.6X_2$

$$(0.4) \quad (1.1) \quad (0.9)$$

$$R^2 = 0.99$$

State the possible problem and explain how it can be solved **(9 Marks)**

### QUESTION TWO (15 Marks)

Four schools training in hospitality sent students for attachment in a chain of hotels. The gauge suitability the hotel tested them and obtained the following results

A	90	98	96	94	88
B	93	96	77	88	99
C	91	96	94	97	78
D	90	91	98	96	94

If the hotel is considering employing future graduands, give justification for or against discrimination.

$$C_t = a_0 + Y_t + u_{1t}$$

### QUESTION THREE (15 Marks)

A structural model is given as following:

$$C_t = a_0 + a_1 Y_t + u_{1t}$$

$$I_t = b_0 + b_1 Y_t + b_2 Y_{t-1} + u_{2t}$$

$$Y_t = a_{01} + a_{11} C_t + a_{12} I_t + a_{13} G_t + u_{1t}$$

Data for the variables is presented as follows:

$Y_t$	31	51	65	71	90	83
$C_t$	19	30	36	40	40	30
$I_t$	8	15	20	21	30	29
$G_t$	4	6	9	10	12	24

Estimate and interpret the results of  $C_t$  function

#### QUESTION FOUR (15 Marks)

$$Y_t = b_0 + b_1 X_1 + b_2 X_2 + u_t$$

Use matrix algebra to estimate the following:

1.  $a_1$  and  $a_2$
2. Variance of  $a_1$  and  $a_2$

Y	12	15	19	34	38	41	20
$X_1$	60	50	40	41	50	28	6
$X_2$	58	14	72	16	8	44	21

#### QUESTION FIVE

- a. Explain possible uses of analysis of variance **(8 Marks)**
- b. Explain all the assumptions of Ordinary Least Square Method **(7 Marks)**

**END//**